Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method for filtering an optical signal, comprising:

directing an input optical signal into an optical resonator configured to support whispering gallery modes and comprising a portion where the whispering gallery modes are present, wherein at least the portion of the optical resonator exhibits an electro-optical effect;

coupling light out of the optical resonator to produce a filtered optical output from the input optical signal; and

applying an electrical control signal to at least the portion in the optical resonator to tune a spectral transmission peak of the optical resonator and thus to select spectral components in the input optical signal in the filtered optical output.

2. (Original) The method as in claim 1, further comprising using TM modes in whispering gallery modes when coupling the input optical signal into the optical resonator and coupling light out of the optical resonator.

3. **(Currently Amended)** The method as in claim 1, further comprising using at least one portion of **a** nonspherical geometry **[[as]]** **in** the optical resonator to support the whispering gallery modes.

4. (Original) The method s in claim 3, wherein the nonspherical geometry is a spheroid.

5. (Original) The method as in claim 3, further comprising using at least one portion of a sphere as the optical resonator.

6. (Original) The method as in claim 1, further comprising using a disk resonator as the optical resonator.

7. (**Currently Amended**) The method as in claim 1, further comprising:

receiving an input electrical signal carrying multiple signal channels;

optically modulating an optical beam with the input electrical signal to produce a modulated optical signal as the input optical signal which carries the multiple signal **channels** [[changes]] as the signal;

tuning the spectral transmission peak of the optical resonator to transmit a selected signal channel in the filtered optical output while optically rejecting other signal channels;

converting the filtered optical output into an electrical signal; and

extracting the selected channel from the electrical signal.

8. (Original) The method as in claim 1, further comprising:

splitting a unmodulated optical beam into first and second beams;

modulating the first beam as the input optical signal;

directing the second beam through an optical delay path;

combining the filtered optical output and the second beam after the optical delay path to produce a combined optical signal;

converting the combined optical signal into an electrical signal; and

extracting the signal from the electrical signal.

9. (Original) The method as in claim 1, further comprising using TE modes in whispering gallery modes when coupling the input optical signal into the optical resonator and coupling light out of the optical resonator.

10. (Original) A tunable optical filter, comprising:

an optical resonator configured to support whispering gallery modes and comprising at least a portion where the whispering gallery modes are present, wherein at least the portion of the optical resonator exhibits an electro-optical effect;

at least one electrode formed on the optical resonator to guide an electrical control signal into the optical resonator to spatially overlap with the whispering gallery modes; and

a control unit coupled to the at least one electrode to supply an electrical control signal to the one portion to tune a refractive index and thus a transmission peak of the optical resonator via the electro-optical effect.

11. (Original) The filter as in claim 10, wherein said tunable optical resonator includes a lithium nicbate crystal.

12. (Original) The filter as in claim 10, further comprising an optical coupler that is evanescently coupled to the optical resonator.

13. (Original) The filter as in claim 12, wherein the optical coupler is a fiber coupler.

14. (Original) The filter as in claim 12, wherein the optical coupler includes a waveguide.

15. (Original) The filter as in claim 12, wherein the optical coupler includes a photonic gap material.

16. (Original) The filter as in claim 12, wherein the optical coupler includes a prism.

17. (Original) A device, comprising a receiver to receive a radiation signal carrying a plurality of signal channels and to extract a selected channel from the received signal channels, wherein the receiver comprises:

an optical modulator to modulate an optical beam in response to the radiation signal to produce a modulated optical signal carrying the signal channels,

a tunable optical filter having (1)an optical resonator which is configured to support whispering gallery modes and comprise at least a portion where the whispering gallery modes are present, wherein at least the portion of the optical resonator exhibits an electro-optical effect, (2) at least one electrode formed on the optical resonator to guide an electrical control signal into the optical resonator to spatially overlap with the whispering gallery modes, and (3)a control unit coupled to the at least one electrode to supply an electrical control signal to the one portion to tune a refractive index and thus a transmission peak of the optical resonator via the electro-optical effect, wherein the optical filter is located to receive

and filter the modulated optical signal to produce a filtered optical output that carries only the selected signal channel,

an optical detector to convert the filtered optical output into an electrical signal, and

a mixer that mixes the electrical signal with a reference signal to extract the selected signal channel.

18. (Original) The device as in claim 17, wherein said tunable optical resonator includes a lithium niobate crystal.

19. (Original) The device as in claim 17, further comprising an optical coupler that is evanescently coupled to the optical resonator.

20. (**New**) A tunable filter, comprising:

an optical modulator having an input port to receive an input signal at an RF or microwave frequency and responsive to the input signal to modulate a first light beam at an optical carrier frequency to carry the input signal;

a light source to produce a light beam;

an optical splitter to split the light beam into the first light beam directed through the optical modulator and a second light beam directed through a separate optical path;

an optical resonator positioned to receive and filter the modulated light from the optical modulator to produce a filtered optical output, the optical resonator supporting whispering gallery modes and comprising a portion where the whispering gallery modes are present, wherein at least the portion of the optical resonator exhibits an electro-optical effect;

a resonator control unit to supply an electrical control signal to at least the portion in the optical resonator to tune a spectral transmission peak of the optical resonator and thus

to select one or more spectral components in the input optical signal in the filtered optical output;

an optical combiner to combine the filtered optical output and the second light beam to produce a combined optical signal; and

an optical detector to convert the combined optical signal into an output signal which carries the selected one or more spectral components.

21. (**New**) The filter as in claim 20, further comprising an optical delay element in the separate optical path through which the second light beam passes.

22. (**New**) The filter as in claim 20, further comprising:

an input optical coupler that is evanescently coupled to the optical resonator and couples light from the optical modulator into the optical resonator; and

an output optical coupler that is evanescently coupled to the optical resonator and couples the filtered optical output out of the optical resonator.

23. (**New**) The filter as in claim 22, wherein at least one optical coupler is a fiber coupler.

24. (**New**) The filter as in claim 22, wherein at least one optical coupler comprises a waveguide coupler.

25. (**New**) The filter as in claim 22, wherein at least one optical coupler comprises a photonic gap material.

26. (**New**) The filter as in claim 22, wherein at least one optical coupler comprises a prism.

27. (New) The filter as in claim 22, wherein the input and output optical couplers couple TM modes in whispering gallery modes.

28. (New) The filter as in claim 20, wherein the optical resonator comprises one portion of a nonspherical geometry to support the whispering gallery modes.

29. (New) The filter as in claim 20, wherein the optical resonator comprises at least a portion of a spheroid to support the whispering gallery modes.

30. (New) The filter as in claim 20, wherein the optical resonator comprises at least one portion of a sphere to support the whispering gallery modes.

31. (New) A method for filtering an input signal at an RF or microwave frequency to produce a filtered output signal, comprising:

deriving first and second optical beams from a CW light beam;

directing the first optical beam through an optical modulator to produce a modulated optical beam;

applying the input signal to control the optical modulator in modulating the first optical beam to carry the input signal in the modulated optical beam;

directing the second optical beam through a separate optical path;

directing the modulated optical beam through a tunable optical resonator to produce a filtered optical beam, the tunable optical resonator supporting whispering gallery modes

and changing a spectral transmission via an electro-optical effect in response to an electrical control signal;

applying the electrical control signal to the optical resonator to tune a spectral transmission peak of the optical resonator and thus to select one or more spectral components in the input optical signal in the filtered optical beam;

combining the filtered optical beam and the second optical beam to produce a combined optical signal; and

using a photodetector to convert the combined optical signal into the filtered output signal which carries the selected one or more spectral components.

32. (New) The method as in claim 31, further comprising causing an optical delay in the second optical beam to suppress noise in the filtered output signal.